

Claim 1 (Currently Amended): An arrangement comprising a first semiconductor chip and a second semiconductor chip connected thereto,

where the first semiconductor chip transmits to the second semiconductor chip the load control data and pilot data which control the second semiconductor chip, and

where the second semiconductor chip transmits to the first semiconductor chip diagnostic data which represent at least one of states prevailing in the second semiconductor chip and events which occur in the second semiconductor chip,

wherein the second semiconductor chip includes means for transmitting the diagnostic data via a first ~~transmission channel~~line connected between the first and second semiconductor chips, and the first semiconductor chip includes means for transmitting the load control data and the pilot data via a second ~~transmission channel~~line connected between the first and second semiconductor chips.

Claim 2 (Original): The arrangement as claimed in claim 1, wherein the first semiconductor chip is a program-controlled unit.

Claim 3 (Currently Amended): The arrangement as claimed in claim 1, wherein the second semiconductor chip is a power chip.

Claim 4 (Currently Amended): The arrangement as claimed in claim 1, wherein the second line is part of a second transmission channel comprising:

a transmission clock line via which the first semiconductor chip transmits a transmission clock signal to the second semiconductor chip,

a data line via which the first semiconductor chip transmits the load control data and the pilot data to the second semiconductor chip in time with the transmission clock signal, and

a chip select line via which the first semiconductor chip transmits ~~the~~ a chip select signal to the second semiconductor chip, said chip select signal signaling to the second semiconductor chip the start and end of the transmission of data intended for the second semiconductor chip via the data line.

Claim 5 (Original): The arrangement as claimed in claim 1, wherein the load control data and the pilot data are transmitted in units of frames, and wherein the load control data frames and the pilot data frames are transmitted using time-division multiplexing.

Claim 6 (Original): The arrangement as claimed in claim 5, wherein the first semiconductor chip defines time windows of constant length and transmits in each time window either a load control data frame or a control data frame or no data.

Claim 7 (Original): The arrangement as claimed in claim 6, wherein the first semiconductor chip transmits no further load control data frame for a respective length of n time windows after transmission of a load control data frame, where $n \geq 0$ and where n can be set by the user of the arrangement.

Claim 8 (Original): The arrangement as claimed in claim 7, wherein a pilot data frame can be transmitted only in a time window in which no load control data frame is to be transmitted.

Claim 9 (Original): The arrangement as claimed in claim 6, wherein transmission of the pilot data has priority when load control data and pilot data are awaiting transmission simultaneously.

Claim 10 (Currently Amended): The arrangement as claimed in claim 1, wherein the first line is part of a first transmission channel comprises-comprising a data line, and wherein this data line is used to transmit neither load control data nor pilot data.

Claim 11 (Currently Amended): The arrangement as claimed in claim 1, wherein the diagnostic data are transmitted in ~~time~~-synch with a transmission clock signal generated in the second semiconductor chip, and wherein this transmission clock signal is not transmitted to the first semiconductor chip.

Claim 12 (Original): The arrangement as claimed in claim 1, wherein the first semiconductor chip transmits appropriate pilot data in order to prescribe to the second semiconductor chip what transmission rate is to be used by the second semiconductor chip to transmit the diagnostic data to the first semiconductor chip.

Claim 13 (Original): The arrangement as claimed in claim 12, wherein the transmission rate is prescribed by transmitting a division factor, and wherein the second semiconductor chip divides the

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Claim 14 (Original): The arrangement as claimed in claim 13, wherein the transmission clock signal supplied to the second semiconductor chip represents the transmission clock which is used by the first semiconductor chip to transmit the load control data or the pilot data to the second semiconductor chip.

Claim 16 (Original): The arrangement as claimed in claim 11, wherein the first semiconductor chip ascertains the phase of the diagnostic data by oversampling the diagnostic data.

Claim 17 (Currently Amended): The arrangement as claimed in claim 1, wherein the first line is part of a first transmission channel ~~comprises~~ comprising a transmission clock line via which the first semiconductor chip transmits a transmission clock signal to the second semiconductor chip, or the second semiconductor chip transmits a transmission clock signal to the first semiconductor chip, and wherein the second semiconductor chip transmits the diagnostic data in ~~time-synch~~ with this transmission clock signal.

Claim 18 (Currently Amended): The arrangement as claimed in claim 1, wherein the second line is part of a second transmission channel ~~comprises~~ comprising a first transmission clock line via which the first semiconductor chip transmits a transmission clock signal to the second semiconductor chip, a second transmission clock line via which the first semiconductor chip transmits the inverse transmission clock signal to the second semiconductor chip, a first data line via which the first semiconductor chip transmits the load control data and the pilot data to the second semiconductor chip in time with the transmission clock signal, a second data line via which the first semiconductor chip transmits the inverse load control data and the inverse pilot data to the second semiconductor chip, and a chip select line via which the first semiconductor chip transmits a chip select signal to the second semiconductor chip, said chip select signal signaling to the second semiconductor chip the start and end of the transmission of data intended for the second semiconductor chip via the data line.

Claim 19 (Original): The arrangement as claimed in claim 18, wherein the output drivers on the first semiconductor chip, which output the load control data, the pilot data and the transmission clock signal, are LVDS drivers or other special drivers whose use limits electromagnetic interference.

Claim 20 (Original): The arrangement as claimed in claim 1, wherein the first semiconductor chip has a plurality of respective different output drivers for outputting the load control data, the pilot data and the transmission clock signal, and wherein the user of the arrangement is able to set which of the plurality of different output drivers needs to be used in each case.

Claim 21 (Original): The arrangement as claimed in claim 5, wherein the first semiconductor chip is connected to a plurality of second semiconductor chips, and wherein a first portion of the data

transmitted in a frame is intended for a first second semiconductor chip, and a second portion of the data transmitted in this frame is intended for a second semiconductor chip.

Claim 22 (Original): The arrangement as claimed in claim 5, wherein

the first semiconductor chip is connected to a plurality of second semiconductor chips,

every second semiconductor chip is connected to the first semiconductor chip via a dedicated chip select line, and

the chip select signals transmitted via the chip select lines can be altered during the transmission of a frame.